AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the

application:

1.	(Currently Amended) A method for monitoring a database, comprising:

collecting submitting a first set of one or more database queries, to a database server

that manages the database, to retrieve, from the database server, user behavior

data that indicates how a first set of one or more actions performed, by one or

more users, use as a result of the one or more users executing a first set of

database statements against the database;

processing and storing the one or more sets of user behavior data as historical data,

said one or more sets of user behavior data including said user behavior data

that was retrieved from the database server in response to the first set of one or

more database queries being executed against the database;

analyzing the historical data to determine behavior patterns;

receiving submitting a second set of one or more database queries, to the database

server, to retrieve, from the database server, a new set of data that indicates a

second set of one or more actions performed, by how the one or more users,

have used the database as a result of the one or more users executing a second

set of database statements against the database;

performing a comparison between the new set of data and the determined behavior

pattern patterns;

determining, based on the comparison, whether the new set of data satisfies a set of

criteria;

if the new set of data satisfies the set of criteria, then determining that the new set of

data represents anomalous activity; and

responding to the determination by performing a targeted operation.

2.	(Original) The method of claim 1, further comprising:

determining if the new set of data violates a rule based policy; and

if the new set of data violates the rule based policy, then determining that the new set

of data represents anomalous activity.

3.   (Currently Amended) The method of claim 2, wherein ~~collecting user behavior data~~

submitting the first set of one or more database queries to the database server further

comprises:

reading information from an audit trail or dynamic performance views of [[the]] a

database manager.

4.   (Currently Amended) The method of claim 3, wherein ~~collecting user behavior data~~

submitting the first set of one or more database queries to the database server further

comprises ~~collecting information~~ submitting the first set of one or more database

queries to the database server at a monitoring level selected from at least one of:

information about database access for one or more selected database objects;

information about database access for one or more selected database users; and

information about database access for one or more selected database user sessions.

5.   (Currently Amended) The method of claim 3, wherein ~~collecting user behavior data~~

submitting the first set of one or more database queries to the database server further

comprises:

receiving a type of information to be monitored;

determining a monitoring level from the type of information; and

activating audit options of the database manager based upon the monitoring level

determined.

6.   (Original) The method of claim 2, wherein analyzing the historical data to determine

behavior patterns further comprises:

determining a statistical model from the historical data.

7.   (Original) The method of claim 6, wherein determining a statistical model from the

historical data further comprises:

determining a frequency of database access from the historical data;

determining a probability function for frequencies of database access; and

determining a cumulative probability function from the probability function.

8.   (Currently Amended) The method of claim 7, wherein performing a comparison

between the new set of data and the determined behavior ~~pattern~~ patterns further

comprises:

testing a hypothesis using the new set of data against the statistical model.

9.   (Original) The method of claim 8, wherein testing a hypothesis using the new set of

data against the statistical model further comprises:

determining a frequency of database access for the new set of data; and

determining the threshold value from a guard criteria and a probability function

        parameter.

10.   (Original) The method of claim 9, wherein testing a hypothesis using the new set of

data against the statistical model pattern further comprises:

comparing the frequency of database access for the new set of data with the threshold

        value.

11.   (Original) The method of claim 7, wherein the historical information is about

database access for one or more selected database objects and wherein determining a

frequency of database access from the historical data further comprises determining a

frequency of at least one of:

object access frequency by hour of day, object access frequency by hour of day and

        operating system user, object access frequency by hour of day and database

        user, object access frequency by hour of day and location, object access

        frequency by hour of day and combination of at least two of operating system

user, database user and location.

12.   (Original) The method of claim 7, wherein the historical information is about

database access for one or more selected database users and wherein determining a

frequency of database access from the historical data further comprises determining a

frequency of at least one of:

user access frequency by hour of day, user access frequency by hour of day and

operating system user, user access frequency by hour of day and database user,

user access frequency by hour of day and location, user access frequency by

hour of day and a combination of at least two of operating system user,

database user, and location.

13.   (Original) The method of claim 7, wherein the historical information is about

database access for one or more selected database user sessions and wherein

determining a frequency of database access from the historical data further comprises

determining a frequency of at least one of:

number of page reads per session, access duration per session, number of page reads

per unit time.

14.   (Original) The method of claim 1, wherein performing a targeted operation comprises

at least one of: raising an alert; sending an email; producing a report; performing a

visualization.

15.   (Currently amended) A computer-readable storage medium carrying one or more

sequences of instructions for reverting to a recovery configuration in response to

device faults, which instructions, when executed by one or more processors, cause the

one or more processors to carry out the steps of:

collecting submitting a first set of one or more database queries, to a database server

that manages the database, to retrieve, from the database server, user behavior

data that indicates how a first set of one or more actions performed, by one or

more users, ~~use~~ as a result of the one or more users executing a first set of
database statements against the database;

processing and storing ~~the~~ one or more sets of user behavior data as historical data,
said one or more sets of user behavior data including said user behavior data
that was retrieved from the database server in response to the first set of one or
more database queries being executed against the database;

analyzing the historical data to determine behavior patterns;

~~receiving~~ submitting a second set of one or more database queries, to the database
server, to retrieve, from the database server, a new set of data that indicates a
second set of one or more actions performed, by ~~how~~ the one or more users,
~~have used the database~~ as a result of the one or more users executing a second
set of database statements against the database;

performing a comparison between the new set of data and the determined behavior
~~pattern~~ patterns;

determining based on the comparison, whether the new set of data satisfies a set of
criteria;

if the new set of data satisfies the set of criteria, then determining that the new set of
data represents anomalous activity; and

responding to the determination by performing a targeted operation.

16.   (Currently Amended) The computer-readable storage medium of claim 15, further
comprising instructions which, when executed by the one or more processors, cause
the one or more processors to carry out the steps of:
determining if the new set of data violates a rule based policy; and
if the new set of data violates the rule based policy, then determining that the new set
of data represents anomalous activity.

17.   (Currently Amended) The computer-readable storage medium of claim 16, wherein
the instructions for carrying out the step of ~~collecting user behavior data~~ submitting
the first set of one or more database queries to the database server further comprise

instructions for carrying out the step of:

reading information from an audit trail of the database manager.

18.   (Currently Amended) The computer-readable storage medium of claim 17, wherein

the instructions for carrying out the step of ~~collecting user behavior data~~ submitting

the first set of one or more database queries to the database server further comprise

instructions for carrying out the step of ~~collecting information~~ submitting the first set

of one or more database queries to the database server at a monitoring level selected

from at least one of:

information about database access for one or more selected database objects;

information about database access for one or more selected database users; and

information about database access for one or more selected database user sessions.

19.   (Currently Amended) The computer-readable storage medium of claim 17, wherein

the instructions for carrying out the step of ~~collecting user behavior data~~ submitting

the first set of one or more database queries to the database server further comprise

instructions for carrying out the steps of:

receiving a type of information to be monitored;

determining a monitoring level from the type of information; and

activating audit options of the database manager based upon the monitoring level

        determined.

20.   (Currently Amended) The computer-readable storage medium of claim 16, wherein

the instructions for carrying out the step of analyzing the historical data to determine

behavior patterns further comprise instructions for carrying out the step of:

determining a statistical model from the historical data.

21.   (Currently Amended) The computer-readable storage medium of claim 20, wherein

the instructions for carrying out the step of determining a statistical model from the

historical data further comprise instructions for carrying out the step of:

determining a frequency of database access from the historical data;

determining a probability function for frequencies of database access; and

determining a cumulative probability function from the probability function.

22.   (Currently Amended) The computer-readable storage medium of claim 21, wherein
the instructions for carrying out the step of performing a comparison between the new
set of data and the determined behavior pattern patterns further comprise instructions
for carrying out the step of:
testing a hypothesis using the new set of data against the statistical model.

23.   (Currently Amended) The computer-readable storage medium of claim 22, wherein
the instructions for carrying out the step of testing a hypothesis using the new set of
data against the statistical model further comprise instructions for carrying out the
steps of:
determining a frequency of database access for the new set of data; and
determining the threshold value from a guard criteria and a probability function
            parameter.

24.   (Currently Amended) The computer-readable storage medium of claim 23, wherein
the instructions for carrying out the step of testing a hypothesis using the new set of
data against the statistical model further comprise instructions for carrying out the
step of:
comparing the frequency of database access for the new set of data with the threshold
            value.

25.   (Currently Amended) The computer-readable storage medium of claim 21, wherein
the historical information is about database access for one or more selected database
objects and wherein the instructions for carrying out the step of determining a
frequency of database access from the historical data further comprise instructions for
carrying out the step of determining a frequency of at least one of:

object access frequency by hour of day, object access frequency by hour of day and

operating system user, object access frequency by hour of day and database

user, object access frequency by hour of day and location and object access

frequency by hour of day and a combination of at least two of operating

system user, database user and location.

26. (Currently Amended) The computer readable storage medium of claim 21, wherein

the historical information is about database access for one or more selected database

users and wherein the instructions for carrying out the step of determining a frequency

of database access from the historical data further comprise instructions for carrying

out the step of determining a frequency of at least one of:

user access frequency by hour of day, user access frequency by hour of day and

operating system user, user access frequency by hour of day and database user,

user access frequency by hour of day and location and user access frequency

by hour of day and a combination of at least two of operating system user,

database user, and location.

27. (Currently Amended) The computer readable storage medium of claim 21, wherein

the historical information is about database access for one or more selected database

user sessions and wherein the instructions for carrying out the step of determining a

frequency of database access from the historical data further comprise instructions for

carrying out the step of determining a frequency of at least one of:

number of page reads per session, access duration per session, number of page reads

per unit time.

28. (Currently Amended) The computer readable storage medium of claim 15, wherein

the instructions for carrying out the step of performing a targeted operation comprises

comprise instructions for carrying out at least one of: raising an alert; sending an

email; producing a report; performing a visualization.

29.   (Currently amended) An apparatus, comprising:

means for ~~collecting~~ submitting a first set of one or more database queries, to a
database server that manages the database, to retrieve, from the database
server, user behavior data that indicates ~~how~~ a first set of one or more actions
performed, by one or more users, ~~use~~ as a result of the one or more users
executing a first set of database statements against the database;

means for processing and storing ~~the~~ one or more sets of user behavior data as
historical data, said one or more sets of user behavior data including said user
behavior data that was retrieved from the database server in response to the
first set of one or more database queries being executed against the database;

means for analyzing the historical data to determine behavior patterns;

means for ~~receiving~~ submitting a second set of one or more database queries, to the
database server, to retrieve, from the database server, a new set of data that
indicates a second set of one or more actions performed, by ~~how~~ the one or
more users, ~~have used the database~~ as a result of the one or more users
executing a second set of database statements against the database;

means for performing a comparison between the new set of data and the determined
behavior ~~pattern~~ patterns;

means for determining based on the comparison, whether the new set of data satisfies
a set of criteria;

means for determining that the new set of data represents anomalous activity, if the
new set of data satisfies the set of criteria; and

means for responding to the determination by performing a targeted operation.

30.   (Currently amended) An apparatus, comprising:

a data collector for (a) collecting user behavior data that indicates ~~how~~ a first set of
one or more actions performed, by one or more users, as a result of the one or
more users executing a first set of database statements against ~~use~~ the
database, ~~and~~ (b) processing and storing the one or more sets of user behavior
data as historical data, said one or more sets of user behavior data including

said user behavior data that was retrieved from the database server in response

to the first set of one or more database queries being executed against the

database, [[;]] and (c) receiving submitting a second set of one or more

database queries, to the database server, to retrieve, from the database server, a

new set of data that indicates how a second set of one or more actions

performed, by the one or more users, as a result of the one or more users

executing a second set of database statements against have used the database;

a data analyzer for analyzing the historical data to determine behavior patterns; and

an anomaly detector for (a) performing a comparison between the new set of data and

the determined behavior pattern patterns,[[;]] (b) determining, based on the

comparison, whether the new set of data satisfies a set of criteria, [[;]] (c)

determining that the new set of data represents anomalous activity if the new

set of data satisfies the set of criteria, [[;]] and (d) responding to the

determination by performing a targeted operation.